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LaSalle County Station
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Exelon
Nuclear

September 2, 2003

10 CFR 50.73

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

LaSalle County Station, Unit 2
Facility Operating License No. NPF-18
NRC Docket No. 50-374

Subject: Licensee Event Report

In accordance with 10 CFR 50.73(a)(2)(iv)(A), Exelon Generation Company, (EGC), LLC, is submitting Licensee Event Report Number 03-004-00, Docket No. 050-374.

Should you have any questions concerning this letter, please contact Mr. Glen Kaegi, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

Susan Landahl

Susan Landahl
Plant Manager
LaSalle County Station

Attachment: Licensee Event Report

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - LaSalle County Station

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and by internet e:mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NOEB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
LaSalle County Station, Unit 2	05000374	1 of 4

4. TITLE: Unit 2 Scram due to Main Power Transformer B Phase Disconnect Switch Failure

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									LaSalle County Station, Unit 1	05000373
7	7	2003	2003	- 004 -	00	09	02	03	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

☐ 20.2201(b)	☐ 20.2203(a)(3)(ii)	■ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2201(d)	☐ 20.2203(a)(4)	■ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(1)	☐ 50.36(c)(1)(i)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ OTHER
■ 20.2203(a)(2)(iii)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
☐ 20.2203(a)(2)(iv)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(viii)(A)	
☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Kent Nelson, Plant Engineering	(815) 415-3879

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	EL	DISC	PASCOR Atlantic	Y						

14. SUPPLEMENTAL REPORT EXPECTED

	YES (If yes, complete EXPECTED SUBMISSION DATE)	☒	NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines)

On 7/7/03, while at 100 percent power, the LaSalle Station Unit 2 main power "B" phase disconnect in the switchyard catastrophically failed, resulting in a main generator trip and reactor scram. The electrical transient tripped the three circulating water pumps, which resulted in the loss of normal heat removal. While controlling reactor pressure and level using the safety relief valves (SRV), the resulting shrink and swell transients caused four additional scram signals on low reactor level.

The cause of the disconnect failure could not be established. The cause of the additional scram signals was the lack of an operating strategy for these conditions.

The safety significance of this event was minimal. A reactor scram with a loss of the main condenser is an analyzed event. Reactor level and pressure were maintained using Reactor Core Isolation Cooling and the safety relief valves, and the High Pressure Core Spray System was available throughout the event.

Corrective actions include development of a condition monitoring program to inspect and monitor the condition of the insulators, and evaluating the adequacy of current switchyard inspection and maintenance procedures.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 3489 Megawatts Thermal Rated Core Power

A. CONDITION PRIOR TO EVENT

Unit(s): 2 Event Date: 7/7/03 Event Time: 2319
Reactor Mode(s): 1 Power Level(s): 100
Mode(s) Name: Run

B. DESCRIPTION OF EVENT

On 7/7/03, the LaSalle Station Unit 2 main power (MP) [EL] "B" phase disconnect in the switchyard catastrophically failed, resulting in an electrical short to ground. Protective relaying operated to clear the fault and trip the main generator. The reactor scrammed upon loss of the generator.

The failure occurred at the mechanical connection portion (beaver tail and contact finger) of the disconnect switch, and resulted in the disintegration of a significant portion of the "B" phase disconnect switch, rigid bus, and standoff insulator.

The electrical disturbance that caused the reactor scram also tripped the three Unit 2 circulating water (CW) [KE] pumps, which resulted in the loss of the main condenser as a heat sink. While in the expanded level band prescribed by LGA-001, "RPV Control," due to loss of the normal heat sink, the crew attempted to stabilize the plant and recover lost systems. While in the expanded level band, the shift crew allowed the Reactor Protection System (RPS) [JC] to automatically actuate four additional times on Reactor Low Level (Level 3, +11 inches) due to the shrink and swell effects from cycling safety relief valves (SRV).

This event was reportable under 10 CFR 50.73(a)(2)(iv)(A) as an event or condition that resulted in the automatic actuation of the reactor protection system.

C. CAUSE OF EVENT

The root cause of the disconnect failure could not be determined. The severity of the damage left limited physical evidence for analysis. Disconnect misalignment can result in improper seating and subsequent heating of the disconnect; however, this was not a likely cause of this event because there was no misalignment on the "A" or "C" phases. Thermography data prior to the event did not indicate an increasing temperature trend on the "B" phase disconnect. A failure of the standoff insulator could have also caused the disconnect to fail.

The cause of the four additional scram signals received while attempting to stabilize the plant was a lack of a formal operational strategy for operating with a prescribed reactor water level band of -30 to +59.5 inches. LGP-3-2, "Reactor Scram," contains cautions that direct the NSO to reset the scram as soon as possible to prevent damage to the CRDs. LGA-001 directs a level band of -30 to 59.5 inches when using SRVs for reactor pressure control. Because the Level 3 reactor low level scram setpoint is well above the bottom of the band (+11 inches), these procedural directions led the crew to conclude that additional scrams in this condition were expected and acceptable.

D. SAFETY ANALYSIS

The safety significance of this event was minimal. A reactor scram with a loss of the main condenser is an analyzed event. Reactor level and pressure were maintained using Reactor Core Isolation Cooling and the safety relief valves, and the High Pressure Core Spray System was operable throughout the event.

E. CORRECTIVE ACTIONS

1. A condition monitoring program will be developed to inspect and monitor the condition of the insulators, as appropriate. (AT# 166562-21).

2. The "A" phase insulator stack and the remaining insulator stack from the "B" phase will be sent to the vendor (LAPP Insulator) for further analysis. The results will be evaluated to determine whether additional actions are warranted (AT# 166562-24).

3. The adequacy of procedures MP-4.5.1 "Substation Disconnect Switch Visual Inspection", MP-4.5.2 "Disconnect Refurbishment Procedure", and MP-4.5.3 "Transmission Disconnect Switches Maintenance Requirements" will be reviewed for adequacy and revised as needed (AT# 166562-22).

4. A formal strategy for operation in the expanded level band will be developed (AT# 166691-17).

F. PREVIOUS OCCURRENCES

LER NUMBER	TITLE
LER 373/01-001	Reactor Scram due to Electrical Fault on Transformer Yard 345 KV Line C Phase Insulator

On January 31, 2001, LaSalle Unit 1 experienced a turbine generator trip and reactor scram. The cause of the generator trip was a phase-to-ground fault on the "C" phase of the transmission line between the main power transformer and the switchyard. The root cause of the event was build up of bird excrement, which caused tracking across the underslung support insulator. The corrective actions from this event would not have prevented the Unit 2 event.

LER 373/90-006	Reactor Scram Caused By Generator Trip due to B Phase Insulator Failure and Subsequent Flashover to Ground

On March 28, 1990, LaSalle Unit 1 was at 100% power. The "B" phase insulator between the Unit 1 east/west main power transformers and the switchyard failed and flashed over to ground. As a result of this flashover, the "B" and "C" phase differential current relays both tripped. This caused a Unit 1 main generator lockout trip, which resulted in a main turbine trip and a reactor scram.

The "B" phase insulator was replaced. The remaining insulators were inspected and no significant problems were noted. The physical and material investigation done at that time did not determine a conclusive root cause. No signs of foreign materials or visual cracks could be found among the remains. The failure was deemed an isolated case, and no additional corrective actions were specified.

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

G. COMPONENT FAILURE DATA

Pascor Atlantic ITE Electric Type TTR6 disconnect switch rated at 2000 amps